REMARKS

Claims 1-36 are pending in the application. Reconsideration of this application is respectfully requested.

Claims 1-22, 26, 29, 30, 34 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,028,842 to Chapman et al, hereinafter "Chapman". Claims 1 and 36 are independent claims. Applicant respectfully traverses this rejection.

Claim 1 provides a method of classifying data traffic in a packet-based communications network conveying different classes of data. The method includes the steps of (a) monitoring a communications network for data traffic to identify a sequence of data packets of unknown class transmitted between a source address and a destination address, (b) measuring a plurality of parameters of at least a significant part of the packet sequence, and (c) deriving from the measured plurality of parameters a probable classification of the data conveyed in the packet sequence. The plurality of parameters is selected from the list of parameters: coding attributes of packets in the sequence, type of transport protocol used, type of error protection protocol used, duration of said sequence, and correlation between traffic in the sequence and traffic in a further sequence being transported from the destination address back to the source address.

Chapman discloses a method and apparatus for monitoring and classifying traffic into one of a plurality of preset classes according to a set of classification parameters, for controlling delivery of the traffic downstream according to quality of service (QoS) parameters specified by the dynamically selected class (col. 2, lines 25-32). Chapman states at col. 2, lines 1 to 3 that the method and apparatus allow the network to discover the nature of a service for each traffic flow, classify it dynamically and exercise so-called traffic "conditioning".

Inspection of addresses and ports allow the system to identify traffic flows (col. 3, lines 38-43). A controller 14 is then used to characterize the flow (using rate, duration, etc.) and to assign it a class (col. 3, lines 12-13).

The controller 14 characterizes flows and classifies them into one of the six classes disclosed over columns 3 and 4. Chapman further states, at col. 4, lines 33-39:

> *"In summary, according to this embodiment, discrimination between traffic types is based on simple analysis of packet arrival rates and packet length plus a particular test for UDP traffic which will be described below. Although it is possible to use port numbers in some instances to determine service type, this method is not consistent enough for general use."* [Emphasis added]

As explained by Chapman, the classification process can be broken down into two parts, namely a simple analysis in relation to packets and a particular test for UDP traffic. In relation to the first part of the classification process, Chapman teaches simple analysis of arrival rates and packet length (col.4, lines 34 – 35). Chapman further describes that the characteristics of a flow are monitored continuously and the flow can be re-classified during its [the flow's] lifetime (col. 4, lines 39 – 41). Col. 4, line 44 to col. 5, line 50 then describe, with the assistance of the state diagram of FIG.5, the classification process mentioned above. In relation to the "UDP Real Time" state (62) of FIG. 5, col. 5, lines 43 – 46 teaches an assessment made when in this state, this part of the state diagram having been given specific mention in the Office Action.

Chapman does not disclose or suggest a method of classifying data traffic including measuring a plurality of parameters of at least a significant part of the packet sequence **and** where the parameters is selected from the list recited in claim 1, namely:

- Coding attributes of packets in the sequence;
- Type of transport protocol used;
- Type of error protection used;

- Duration <u>of said sequence</u>;
- Correlation between traffic in said sequence and traffic in a further sequence being transported from said destination address back to said source address.

The Office Action cites col. 3, lines 7-36 as disclosing the features of claim 1 listed above, but col. 3, line 13 does not even disclose a distinct act of selection of a plurality of parameters from amongst the list of parameters of claim 1. In any event, this line of the Chapman is vague.

Whilst paragraph 48 of the Office Action identifies col. 5, line 44 and col. 5, lines 52 – 65 as teaching measurement of multiple parameters, "such as flow rate and duration of the flow and the type of protocol used", Applicants submit that this passage does not disclose selection of a plurality of parameters <u>from the list of claim 1</u>.

In this respect, Applicants respectfully submit that the Examiner may have misinterpreted the cited passages identified in paragraph 48 of the Office Action. Firstly, col. 5, line 44 is not particularly clear. Additionally, col. 5, line 46-47 contains an error. In particular, reference to "UDP Best Effort" for latencies greater or equal to 1 second should, Applicants believe, refer to "UDP Low Latency". Hence, Applicants question the accuracy and hence credibility of the algorithm set out in col. 5 of Chapman.

In any event, it is respectfully submitted that col. 5, line 44 does not teach measurement of <u>a duration of said sequence</u> as recited in claim 1. The purpose of the test at col. 5, line 44 is to determine whether the packet arrival rate is greater than 1000 pks/s (col. 4, lines 23-25 and col. 4, lines 30-32). In fact, calculating whether 300 packets have been received in less than 200 ms actually calculated whether the packet arrival rate is greater than 1500 pks/s. Applicants submit that such calculation is not, in fact, <u>measurement of the duration of said sequence</u>, and not even measurement of the duration of <u>at least a significant part</u> of the packet

sequence. In fact, Chapman does not teach that 300 packets constitutes the flow, rather only a part of the flow and not even, it is submitted, a significant part of the flow. The skilled person would not interpret a count of 300 packets as constituting a significant part of the sequence or flow, because such a measurement is fixed at 300 packets and lengths and durations of flows can vary. Indeed, as explained in col. 3, lines 53-4, Telnet and X-windows flows can be "very long". Additionally, the duration of a flow is also a function of the length of packets that are part of the flow. Hence, it is submitted that Chapman does not teach that 300 packets constitutes the sequence (flow) or is a significant part of the sequence. Consequently, col. 5, line 44 does not teach measurement of duration of the flow as part a specific selection of parameters.

Turning to col. 5, lines 52 – 65, this passage deals with the determination of whether a UDP flow is a real-time flow or another UDP flow; this is the particular test for UDP traffic mentioned above in relation to col. 4, lines 33-39. Col. 5, lines 52-56 simply explain that real-time UDP flows are not self-clocked and have an average packet generation rate that is constant. Col. 5, lines 57 – 58 explain that there are two ways in which the above-mentioned attributes can be used to detect real-time flow. In this regard, col. 5, lines 58-62 explain the effects of a real-time flow on a queue for real-time flows, namely that they grow without bound and that this is in contrast to a queue of a self-clocked flow that will only grow to the size of an acknowledged burst. So far, no selected or performance of measurement of a parameter listed in claim 1 has been disclosed. This passage only implies that one could perhaps examine the state of the queue associated with the flow. Col. 5, lines 62 – 65 teaches "another approach", namely to keep a history of interarrival times for packets of the flow due to the uni-modal nature indicative of real-time flows around the average rate. The recordal of interarrival times is not the same as measuring a duration for the express purpose of deriving from the measured duration a probable classification of the data conveyed in the packet sequence (feature (c) of claim 1). Chapman does not teach summation of the individual interarrival times (which is not, it is submitted, the same as measuring the duration) and subsequent use of the

summed interarrival times as one of the parameters to derive the probable classification of the flow.

In relation to the passages cited in paragraphs 44 and 45 of the Office Action, Applicants respectfully submit that the Examiner may have misinterpreted the significance of these passages. Whilst these passages may well describe the act of continuous monitoring, they do not disclose the act of making measurements of a plurality of parameters **of** at least a significant part of the packet sequence, because as can be seen from col. 5, lines 14 to 16, the process needs to be in the initial state (50) to establish the protocol being employed (this being one of the parameters of the plurality of parameters) and this does not happen in respect of at least a significant part of the packet sequence. Indeed, the skilled person will appreciate that the protocol determination takes place at the beginning of the process depicted in FIG. 5.

Consequently, it is submitted that Chapman does not disclose the act of specific selection of a plurality of parameters from the list recited in claim 1 and measuring them. Indeed, the Chapman does not even disclose an instance of specific selection of protocol type and duration of flow together, this being an example of two parameters from the list of claim 1.

Thus, Chapman fails to disclose or suggest the elements of claim 1. Therefore, claim 1 is not anticipated by Chapman.

Claims 2-22, 26, 29, 30 and 34 depend from claim 1. For at least reasoning similar to that provided in support of the novelty of claim 1, claims 2-22, 26, 29, 30 and 34 are not anticipated by Chapman.

Claim 36 recites features similar to that recited in claim 1. For at least reasoning similar to that provided in support of the patentability of claim 1, claim 36 is not anticipated by Chapman.

For the reasons set forth above, the rejection of claims 1-22, 26, 29, 30, 34 and 36 under 35 U.S.C. 102(b) as anticipated by Chapman is overcome. Applicant respectfully requests that the rejection of claims 1-22, 26, 29, 30, 34 and 36 be reconsidered and withdrawn.

Claims 23-25 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of U.S. Patent No. 6,597,600 to Rueda et al., hereinafter "Rueda". Applicant respectfully traverses this rejection.

As discussed above, Chapman does not disclose or suggest a method of classifying data traffic including "measuring a plurality of parameters of at least a significant part of the packet sequence," or "deriving from the measured plurality of parameters a probable classification of the data conveyed in the packet sequence," as recited in claim 1. Thus, Chapman fails to disclose or suggest the elements of claim 1.

Applicant does not believe that Rueda makes up for the deficiencies of Chapman, as it applies to claim 1. Accordingly, Applicant submits that claim 1 is patentable over the cited combination of Chapman and Rueda.

Claims 23-25 and 27-28 depend from claim 1. For at least reasoning similar to that provided in support of the patentability of claim 1, claims 23-25 and 27-28 are patentable over the cited combination of Chapman and Rueda.

For the reasons set forth above, the rejection of claims 23-25 and 27-28 under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of Rueda is overcome. Applicant respectfully requests that the rejection of claims 23-25 and 27-28 be reconsidered and withdrawn.

Claims 31 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of U.S. Patent No. 6,640,248 to Jorgenson, hereinafter

"Jorgenson". Applicant respectfully traverses this rejection.

As discussed above, Chapman does not disclose or suggest the elements of claim 1. Applicant does not believe that Jorgenson makes up for the deficiencies of Chapman, as it applies to claim 1. Accordingly, Applicant submits that claim 1 is patentable over the cited combination of Chapman and Jorgenson.

Claims 31 and 35 depend from claim 1. For at least reasoning similar to that provided in support of the patentability of claim 1, claims 31 and 35 are patentable over the cited combination of Chapman and Jorgenson.

For the reasons set forth above, the rejection of claims 31 and 35 under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of Jorgenson is overcome. Applicant respectfully requests that the rejection of claims 31 and 35 be reconsidered and withdrawn.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of U.S. Patent No. 6,651,099 to Dietz et al., hereinafter "Dietz". Claims 32 and 33 depend from claim 1. Applicant respectfully traverses this rejection.

As discussed above, Chapman does not disclose or suggest the elements of claim 1. Applicant does not believe that Dietz makes up for the deficiencies of Chapman, as it applies to claim 1. Accordingly, Applicant submits that claim 1 is patentable over the cited combination of Chapman and Dietz.

Claims 32 and 33 depend from claim 1. For at least reasoning similar to that provided in support of the patentability of claim 1, claims 32 and 33 are patentable over the cited combination of Chapman and Dietz.

For the reasons set forth above, the rejection of claims 32 and 33 under 35 U.S.C. 103(a) as being unpatentable over Chapman in view of Dietz is overcome.

Applicant respectfully requests that the rejection of claims 32 and 33 be reconsidered and withdrawn.

An indication of the allowability of all pending claims by issuance of a Notice of Allowability is earnestly solicited.

Respectfully submitted,

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